



2014 EXAMINATIONS

ACCOUNTING TECHNICIAN PROGRAMME

PAPER TC4: INFORMATION SYSTEMS

THURSDAY 11 DECEMBER 2014

TIME ALLOWED : 3 HOURS

SUGGESTED SOLUTIONS

1.
 - (a)
 - (i) Information system also require feedback which is output that is returned to appropriate members of the organization to help them evaluate or correct the input stage processing way also be modified.
 - (ii) Any **five** environmental anchors:

Customers, suppliers, competitors, stakeholders and regulatory agencies, tax bodies employees.
 - (b) Digital firm

It is a firm where nearly all of the organization's significant business relationships with customers, suppliers and employees are digitally enabled and mediated. Core business processes are accomplished through digital networks spanning the entire organization or linking multiple organizations. Digital firms are distinguished from traditional firms by their near total reliance on a set of information technology to organize and manage.

For managers of digital firms, information technology is not simply an enabler but rather the core of the business and primary management tool.
 - (c)
 - (i) Electronic business definition

Firm which in contrast to an electronic commerce firm conducts its day to day business functions over the internet and/or other electronic networks such as electronic data interchange (EDI). Electronic business includes collaborating with distributors on sales promotions, interacting with and servicing the customers and conducting joint research with business partners. IT enables use of ICT to enable external activities and relationships.
 - (ii)
 - Electronic banking
 - Bill payments
 - Point of sale
 - Money transfers
2.
 - (a) Data processing is the collection and manipulation of item of data to produce meaningful information to the user.
 - (b) Electronic data processing is the use of automated methods to process data – manipulate data. It uses relatively simple, repetitive activities to process large volumes of similar data.

(c) **Four** advantages of electronic data process:

- (i) Processing data in large volumes at a greater speed and accuracy.
- (ii) Paper-less office since all outcome is kept on electronic devices.
- (iii) Less prone to error than humans.
- (iv) Providing output of consistently better quality.
- (v) Immune from human conditions e.g. sick leave, strikes, fatigue etc.
- (vi) Enhanced security of data through passwords
- (vii) Reduced cost of transportation of data items through electronic communications.
- (viii) For accounting systems, double entry is automatic.

(d) **Four** disadvantages of electronic data processing:

- (i) Computer can be expensive to install and maintain.
- (ii) GIGO – Garbage in, garbage out. If software is wrong, you get wrong results.
- (iii) Viruses can cause data to be lost.
- (iv) Frequent change in technology can lead to frequent replacement of computers hence can be expensive.
- (v) Computers require electricity to run hence can be expensive in remote areas.
- (vi) Computers require trained technical personnel to use and maintain.
- (vii) Can lead to job losses due to huge volumes they process which was done by several humans.
- (viii)

3.

(a)

- (i) A bit is a binary digit that represents a 0 or 1.
- (ii) A Bytes is a string of digits either singularly or collectively put together. Digital computers operate directly with binary digits.
- (iii) Electronic signals are represented as presence of signal = 1 and absence 0.

- (b) (i) A customer receipt is a written acknowledgement that a specified payment or article has been received. A receipt records the sale of goods or provision of a service.
- (ii) List of **ten** items that appear on a receipt:
- Name of one paying
 - Name of receiver (person receiving)
 - Signature of the person receiving
 - Receipt number
 - Method of payment/cash/cheque
 - Description of what is being paid for
 - Amount of payment
 - Currency denomination
 - Date of the receipt
 - Name of organization receiving
 - Address of organization receiving
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- (4) (a) A peripheral is any piece of hardware that is connected to the system unit by means of a cable wire and cord or infrared port.
- (b) He needs to carry the following:
- (i) The system unit for processing.
 - (ii) Keyboard, mouse, screen (VDU) for input probably camera too.
 - (iii) Printer for hardcopy/disks. Flash disk for softcopy – output.
 - (iv) Modem and cable for transmitting his report to publishing houses.
 - (v) E-mail addresses for publishing houses.
 - (vi) Power cables for the devices.
- (c) (i) Connect the computer peripherals to the system unit. Plug the power cables and switch on electricity.
- (ii) Using the mouse, he would click on the software icon he needs to compile his report to start the program. Using the keyboard, he would key in the report and view the entered keys on the screen. He probably would download pictures too from the camera. This would act as input.

- (iii) The system unit would help him with the processing of the report i.e. if figures were involved, it would help in calculations, sorting and comparisons. It would also help in editing, formatting and rearranging text (processing) and adding of the photographs. The system unit would also be used to store the reports and pictures.
- (iv) Having finished keying in the report, he would view it on the VDU as an output and save it on a flash disk or hard disk. He then would print the report on the printer for a hard copy – output.
- (v) Using the modem, telephone and an internet service provider, he would send the report via e-mail as a soft copy in its original format to the publishing houses using the e-mail addresses.

5. (a) ROM is Read Only Memory

RAM is Random Access Memory

(b) (i) Properties of RAM

- It is a hardware component which is attached to the computer mother board.
- It resides in the main memory of the CPU.
- It keeps temporary data.
- It is temporary – it can be removed.
- It is volatile and can be lost during power failure.
- It holds a programme and data while an operator is working on them.
- It allows correction, additions or removal of data or software.
- It is empty when processing is complete.
- It is usually used by applications.
- It can be upgraded
- Its size is measured in bytes.

Properties of ROM

- It is held on a storage device like hard disk.
- It is permanent – i.e. cannot be removed from the computer since it resides on the motherboard.
- It is available for use every time.
- It is never affected by power failure.

- It allows you to read it.
- It is obtained by saving onto a storage medium.
- It is usually supplied by computer manufacturers.
- It is mainly used by the computer – e.g. during booting.
- It contains minimum instructions needed to start the computer.
- It cannot be added or upgraded
- Instructions on it are embedded.

(c) Differences between RAM and ROM:

- RAM is a hardware component which can be physically removed from the motherboard whereas ROM is part of the motherboard and cannot be removed or upgraded.
- RAM can be updated (edited) whereas ROM is permanent.

(d) Similarities between ROM and RAM:

- They are both used in the computer to process data in information.
- RAM helps the computer application systems and ROM helps the boot up of the system.

6. (a) Data integrity in the context of security is preserved when data is the same as that in the source documents and has not been accidentally or intentionally altered, destroyed or disclosed.

(b) (i) Input controls

- Data verification, this involves assessing that data entered matches source documents through: spot checks, hash totals, logs etc.
- Data validation, this involves ensuring that data entered is not incomplete and unreasonable. This can be through limit checks, control totals, log, encrypting data during transmission.

(ii) Processing controls

Should ensure the accuracy and completeness of processing through:

- program development controls
- periodic running of test data
- password limitation to certain processes

- authority requests on certain limits or cost.

(iii) Output controls:

Should ensure accuracy, completeness and security of output through:

- investigating and follow up of error reports
- investigating and follow up of exception reports
- batch controls to ensure all items are processed and returned
- control over distribution/copying output
- labelling of output devices (media).

Backup controls

Aim is to maintain system data integrity through copying of files in anticipation of future failure.

- Regular testing of stored data
- A well planned back-up scheme
- Storage tape rotation
- A well planned back-up archive strategy
- A plan for a regular back-up of critical data
- A disaster recovery plan in place.

Contingency controls:

* A contingency is an unscheduled interruption of computing services that require measures outside the day to day routine operation procedures.

- Preparation of a disaster recovery plan as one stage of organization wide security policy.
- Once off testing the disaster recovery plan at some intervals.
- Introduce standby procedures, power generators, manual documents of transaction processes.
- Recovery procedures once cause of breakdown has been identified.
- Prepare personnel to ensure that they carry out recoveries when required.

7. (a) Software are detailed instructions that control the operations of a computer system. Without software, computer hardware cannot perform the tasks associated with computers and no information will be produced by computers. Software includes the data in the computer system.
- (b) Functions of software:
- To manage the computer resources of the organization.
 - To provide tools for human beings to utilize the resources.
 - To act as an intermediary between organizations.
 - To store data and information.
 - To manipulate data and information.
 - To secure data and computer system.
 - To control the tasks of computer devices.
 - To transmit data among computers.
- (c) Operating system is a set of generalized software that manages the computer processing unit, communication links and peripherals. System software usually deals with operating the hardware of the computer so that the user can run his applications and get results. It bridges the computer with the user, application software and the peripherals. All computer systems have systems software to operate. Without systems software, computers cannot operate.
- (d) **Two** main functions of operating system:
- (i) Allocation and assignment of the application jobs, providing allocations in primary memory for data and programs and controlling the input, processing and output devices.
 - (ii) Scheduling:
A lot of pieces of work can be going into a computer simultaneously. The system software decides when to schedule the jobs that have been submitted and when to coordinate the scheduling in various areas of the computer so that different jobs can be worked on at the same time.
 - (iii) Monitoring:
The system software monitors the activities of the computer system. It keeps track of each computer job and who is using the system, what programmes have been run or executed and any authorized attempts to access the system.

8. (a) (i) An analog computer is a form of computer using electronic or mechanical phenomena to model the problem being solved using one kind of physical quantity to represent another.
- (ii) A digital computer system is one that uses discrete values rather than a continuous spectrum of values. The physical or mechanical phenomena are used to construct a finite-state machine which is then used to model the problem being solved.
- (b) (i) Data transmission
- When data are transmitted using analog methods, a certain amount of noise enters into the signal. This can have many different causes: data transmitted by radio may be received badly, suffer interference from other radio sources, or pick up background radio noise from the rest of the universe. Electrical pulses being sent down wires are attenuated by the resistance of the wire and dispersed by its capacitance and heat variations can increase or reduce these effects whilst digital transmissions are also degraded, any slight variations can be safely ignored. Any variance could provide a great amount of distortion on analogue signal, in a digital signal, these variances can be overcome, as any signal close to a particular value will be interpreted as that value.
- (ii) Digital display
- For human readable, both digital and analogue display methods can be useful. Should an instant impression be required, analogue meters often give information quickly. Many people glance quickly at their analogue watch and know roughly what the time is. When accuracy is required, however, digital displays are preferred. Reading analogue meters requires time and a bit of skill whereas writing down the value, on a digital display is merely a case of copying down the numbers. In case where both accuracy and quick reckoning are required, dual displays are often used.
- (iii) Loss of accuracy of data during conversion
- When an analogue source needs to be converted into a digital signal for processing by other digital systems, some data may be lost. The analogue to digital converter only has a certain resolution; whereas the human eye may be able to detect tens of thousands of different intensities of pure green, the digital camera may only be capable of 256 at a resolution of a megapixel or so.

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